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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/449,034	11/24/1999	LOWELL D. BOK	4865/49-BFG1	5756

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EXAMINER

BURCH, MELODY M

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 09/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/449,034

Applicant(s)

BOK ET AL

Examiner

Melody M. Burch

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 11 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 11 and 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 20. 6) ☐ Other:

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification fails to provide proper antecedent basis for the term "wear faces" first claimed in line 3 of amended claim 1.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not provide support for the brake disks, end plate and pressure plate each comprising of disks with wear faces having three different wear portions. The claim language reads as if the end plate, for example, is made up of more than one disk and as if the wear faces have three different wear portions. Clarification is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 11, and 13-16 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Canadian Patent CA-2004091 in view of Bok '895.

Re: claims 1, 4, 5, 11 and 13. CA-2004091 shows in figures 1 and 2 a brake disk assembly comprising an end plate 4,S5, a pressure plate 5,S1 and initially brake disks R1-R4 and S1-S5 axially aligned and disposed therebetween, wherein the brake disks, end plate and pressure plate comprise disks of three different wear portions whereby disks of a first thickness S1, R1, R2 (thickness = $E+4e$) have an initial wear portion ($4e$), disk of a second thickness S3 (thickness = $E+3e$) have approximately two thirds ($3e$) of the initial wear portion of the first thickness disk, and disk of a third thickness S5 (thickness = $E+e$) have approximately one third (e) of the initial wear portion of the first thickness disk, the brake disk assembly including disks of a first, second, and third thickness, whereby at an overhaul the available wear portion of the first thickness disk is approximately equal to the initial available wear portion ($3e$) of the second thickness disk, and the available wear portion of the second thickness disk is about equal to the initial available wear portion (e) of the third thickness disk, and the available wear portion of the third thickness disk is substantially fully worn, whereby the third thickness disk is removed and replaced with disk of a first, second or third thickness as disclosed from the last paragraph on pg. 3 to the end of the first full paragraph on pg. 5 of the English translation, but does not disclose that the ratio of the initial available wear portion of the second and third thickness disks are exactly $2/3$ and $1/3$ of the initial

available wear portion of the first thickness disk, respectively, and does not show in the two figures that the second and third thickness disks each comprises a plurality of disks.

Bok '895 teaches in col. 5 lines 40-42 that the thickness of the wear portions may be varied to obtain certain advantages provided by the embodiments - one advantage being piston travel. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the available wear portions of the second and third thickness disks of CA-2004091, in view of the teachings of Bok, to have been exactly $\frac{2}{3}$ and $\frac{1}{3}$ of the initial available wear portion of the first thickness disk, respectively, or any other appropriate ratio as determined by routine experimentation in order to optimize system performance by utilizing the appropriate thickness discs to achieve the desired performance results.

CA-2004091 teaches in figures 1 and 2 the use of a brake disk assembly in which the first thickness disk comprising a plurality of disks S1, R1, R2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the second and third thickness disks of CA-2004091 with a plurality of disks, in view of the teaching in CA-2004091 of the plurality of disks of the first thickness, in order to provide a means of increasing the total braking capacity of the assembly.

Re: claim 2. CA-2004091 shows an actuator 3 in figures 1 and 2.

Re: claims 3 and 16. CA-2004091, as modified, teaches the use of a plurality of rotors and stators in figures 1 and 2. It would have been obvious to one of ordinary skill in the art to have constructed the brake assembly of CA-2004091, in view of the

teachings of CA-2004091, with a varying number of rotors and stators depending on the amount of braking force required which would be based on the type of aircraft in which the brake would be used.

Re: claims 14 and 15. Bok '895 teaches in figure 4 the use of a pressure plate left side 48 and an end plate right side 48 which also comprise brake disks. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the brake assembly of CA-2004091, as modified, to have included a pressure plate and an end plate comprising brake disks, as taught by Bok '895, in order to provide increased braking capacity. Bok '895 also teaches in col. 5 lines 40-42 that the thickness of the wear portions may be varied to obtain certain advantages provided by the embodiments - one advantage being piston travel. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the available wear portions of the pressure plate and end plates comprising brake disks of CA-2004091, as modified, in view of the teachings of Bok, to have included available wear portions of differing or specifically two times the thickness of the other or any other appropriate ratio as determined by routine experimentation in order to optimize system performance by utilizing the appropriate thickness discs to achieve the desired performance results.

Response to Arguments

6. Applicant's arguments filed 8/13/02 have been fully considered but they are not persuasive. Applicant argues that the Canadian reference does not show a three wear portion on a single wear face. Examiner maintains that the argument is more specific

than the claim language as the claim reads "wear face**S** having three different wear portions". Examiner also notes that the amended claim limitation is not supported by the originally filed specification. Applicant also argues that the Canadian reference does not provide replacing the fully worn disks with a disk of a first, second, or third thickness. Examiner notes that the phrase "first, second, or third thickness" is written in alternative form and that the Canadian reference satisfies one of the alternate options. The argued limitation of three thicknesses of rotors in the assembly itself is more specific than the claim language. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner maintains that Bok '895 is used solely for the teaching of varying the thickness of the wear portions. Applicant argues that a reference itself cannot be used as a base reference as well as the modifying reference. However, Examiner notes that in section 706.02(j) of the MPEP it is stated that 35 U.S.C. 103 authorizes the modification of a single reference and requires that there is provided an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification. Examiner maintains that the modification of the Canadian reference involving the use of plurality of disks would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a means of increasing the total braking capacity of a brake assembly.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

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mmb
September 9, 2002

M. C. Graham
9-12-02

**MATTHEW C. GRAHAM
PRIMARY EXAMINER
GROUP 310**